

2023's Top Ten Discoveries in Breast Cancer Research for Young Women: BCYW Foundation Recap

Breast Cancer in Young Women Foundation Spotlights Top Ten Transformative Impacting Women Under 40

DENVER, COLORADO, UNITED STATES, January 10, 2024 /EINPresswire.com/ -- The [Breast Cancer in Young Women Foundation \(BCYW Foundation\)](#) takes immense pride in presenting the top ten innovative research advancements in breast cancer, specifically targeted toward young women under 40.

2023 witnessed a prolific period of breakthroughs in breast cancer research, spanning basic, translational, and applied spectrums. The BCYW Foundation carefully selected the ten discoveries that break new ground in research and show promise in their intended application for young women battling breast cancer. These advancements are all set to transform the landscape of breast cancer treatment and prevention for this demographic.

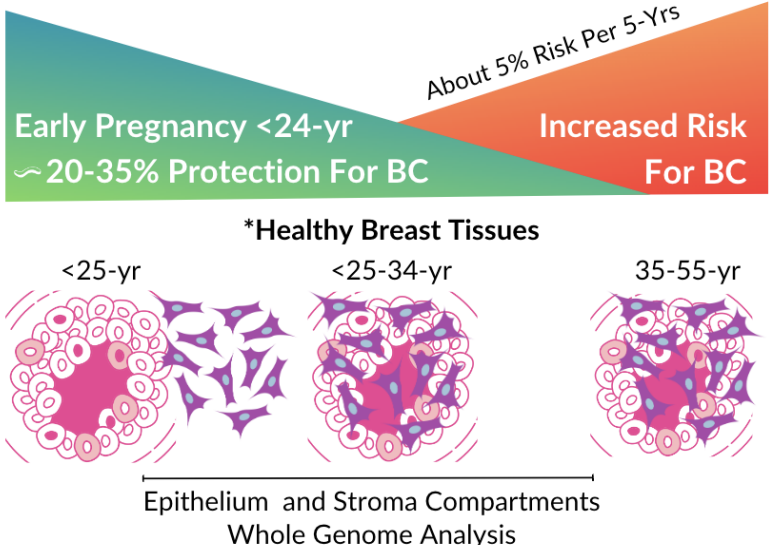
The BCYW Foundation firmly believes in the potential of science and medicine to improve the lives of young women who are fighting breast cancer. By supporting these advancements,



**AWARENESS, ADVOCACY
ADVANCED RESEARCH
TODAY
SAVING LIVES
TOMORROW**

<https://breastcancerinyoungwomen.org>
Breast Cancer in Young Women Foundation

Image Displaying the Core Awareness Message of the BCYW Foundation.



Early Pregnancy <24-yr
~20-35% Protection For BC

Increased Risk For BC
About 5% Risk Per 5-Yrs

***Healthy Breast Tissues**

<25-yr <25-34-yr 35-55-yr

Epithelium and Stroma Compartments
Whole Genome Analysis

- About 15 mutations in epithelium, 42 in stroma per year (including BC-associated).
- Parity-coupled, age-linked size increase in clones with mutated genes.
- Team implied - Pregnancy might preferentially expend such clones > higher BC risk.

*No prior use of hormonal contraception and without BRCA1/2 pathogenic mutations

The Link Between Pregnancy Timing and Breast Cancer Risk: Insights From A Recent Study.

the foundation strives to create a healthier future, protecting young people and women from breast cancer.

Key highlights among the top discoveries include (for details/images, read [#HerBreastCareInsights](#)):

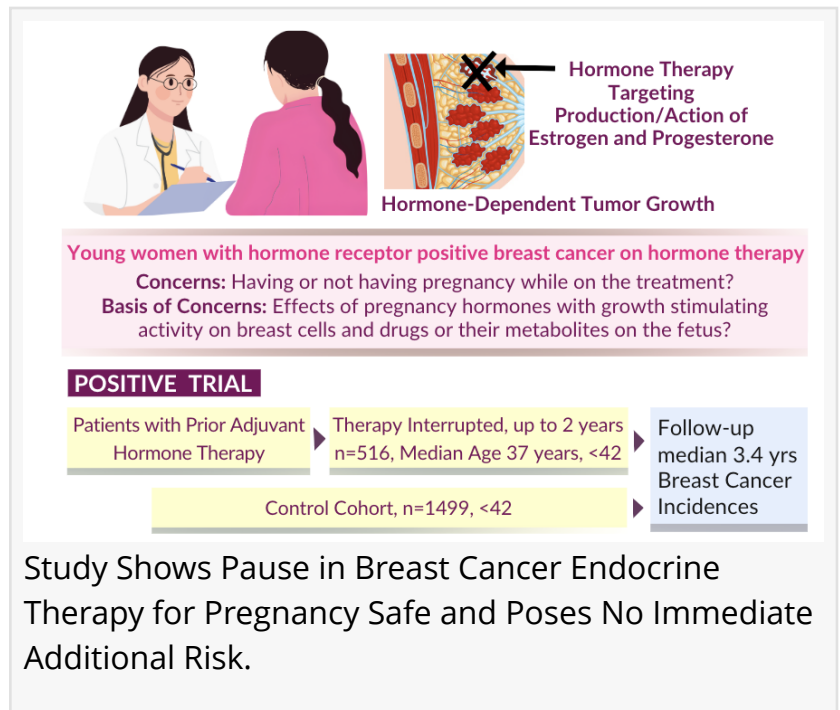
1. Decoding the Basis of Breast Cancer Risk in Late First Pregnancies: Cereser et al. discovered why delaying childbirth might heighten the risk of breast cancer (Nature Communications 14: 5136, 2023). They found that women having their first child later accumulated more genetic changes in breast DNA linked to the active growth of breast cells than women with their early first pregnancy (Image 2). Pregnancy might expand such cells over others, affecting breast cancer risk.

2. Luminal A-Linked Genetic Alterations in Non-Cancerous or Normal Breast Tissues: Nishimura et al. discovered a chromosome alteration, the del (1;16) - prevalent in Luminal A breast cancer - in non-cancerous and normal breast tissues from Puberty to Adolescence (Nature 620: 607, 2023). The team estimated that these genetic changes take 10.6 years to accumulate before breast cancer, raising the possibility of predicting Luminal-A risk.

3. Revealing the Pioneering Role of Breast Milk in Detecting and Predicting Early Breast Cancer: Saura et al. demonstrated that breast milk from women with breast cancer during pregnancy or postpartum can detect cancer-specific genomic material (Cancer Discovery 13: 1, 2023). Specific genomic alterations can be noticed in breast milk 6-18 months before clinical diagnosis, leading to early detection and better outcomes for new young mothers diagnosed with breast cancer.

4. Processed Foods Might Fuel Mammary Gland Abnormalities in Young Women from Puberty to Adolescence: Scientists recognized processed foods' AGEs as linked to breast cancer risk, lacking clear cause-and-effect evidence. Krisanits et al. provided direct proof via a mouse model: those on a high-AGE diet (but not on low-AGE or regular diets) during puberty into adulthood displayed abnormal mammary gland growth, somewhat like early breast cancer stages Breast (Cancer Res 251: 118, 2023). This underscores the vulnerability of mammary glands during puberty, potentially increasing future cancer risks.

5. Resurfacing Connections - Birth Control Pills and Breast Cancer Risk in Young Women: One debated risk factor for young women's breast cancer involves birth control pills. Fitzpatrick et al.



discovered a 20-30% increased breast cancer risk with various hormonal contraceptives compared to non-users (PLoS Med 20:e1004188, 2023). The study indicated that women using oral contraceptives for five years faced added breast cancer risk – which varied from eight to 265 cases per 100,000 women across different age groups, aged 16-20 to 35-39.

6. Broadening The Power of Estrogen in Breast Cancer Development - Hidden Impact in Promoting Oncogene Amplification: Breast cancer's early stages involve the activation of cancer-causing genes called oncogenes. Lee et al. study unveils estrogen's crucial role in oncogene activation, fuelling the initial stages of breast cancer development, revealing a broader impact of estrogen on breast cancer (Nature 618:104, 2023).

7. Study Shows Pause in Breast Cancer Endocrine Therapy for Pregnancy Safe and Poses No Immediate Additional Risk: Great news for young women with early-stage hormone receptor-positive breast cancer (stage 1, II, or III) who wish to conceive! Partridge et al. reveal that pausing hormone therapy for pregnancy doesn't further heighten cancer recurrence risk (N Engl J Med 388:1645, 2023), providing hope to those wanting to start a family post-cancer treatment (Image 3).

8. Adipose Factors at the Crossroads of Breast Cancer: Unveiling DNA Damage in BRCA1/2 Mutations Carriers with Obesity: Bhardwaj et al. investigated how fatty tissue affects mammary cells with BRCA mutations (Sci Trans Med 15: Eade1857, 2023). The team revealed a link between adipose tissue-derived molecules, increased estradiol biosynthesis, and increased DNA damage due to flawed BCRA1/2 repair mechanisms. Considering other breast cancer risk factors have been linked to DNA damage, these findings could impact breast cancer beyond BRCA mutation carriers.

9. Understanding Prognosis and Immunological Signatures of Postpartum Breast Cancer: One significant research gap in studying breast cancer after childbirth in the younger 40 is the lack of differentiating immune features of postpartum breast cancer during lactation versus stopping breastfeeding or postweaning phases. Lefrere et al. discovered that having more plasma B cells in postweaning breast cancer highlights differences in the tumor immunologic features between the two phases, opening new research frontiers for breast cancer (Clin Cancer Res 29: 3729, 2023).

10. The Impact of Paraben and Phthalate-Free Personal Care Products on Breast Cancer - Insights from an Intervention Study: Parabens and phthalates, commonly found in personal care products, have been linked to breast cancer risk. Dairkee et al. demonstrated reduced expression of breast cancer-associated genes, metabolites, and estrogenic activities in body biofluids from healthy women who used paraben/phthalate-free PCPs for 28 days (Chemosphere 322:138014, 2023). These findings raise the possibility of developing new intervention prevention strategies in young women.

The discoveries offer promising pathways for targeted treatments, early detection, interventions,

and personalized breast care explicitly tailored to the unique needs of young women, representing a pivotal step in the fight against breast cancer.

The BCYW Foundation's international visionary team comprises breast cancer specialists, scientists, advocates, survivors, NGOs, and global ambassadors from 20 countries. Our awareness materials are available in 13 languages, featuring inspiring bilingual survivor stories in 6 languages. Dedicated exclusively to core issues related to BCYW, the Foundation strives for global impact. The BCYW Foundation relies on individual contributions to support its mission. Visit <https://www.breastcancerinyoungwomen.org>.

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